Claims

We claim:

1. A solid-state display comprising:

a substrate including a plurality of LEDs and reflecting surfaces alternately deposited thereon; and

a diffusing surface opposite said substrate including a transflective surface corresponding and opposite to each of said LEDs, wherein light emitted from said LEDs is reflected from said corresponding transflective surface, toward said reflecting surface.

2. The display as recited in claim 1, wherein said transflective surface has a known cross-sectional shape.

3. The display as recited in claim 2, wherein said cross-sectional shape is selected from the group consisting of: square, rectangular, conic, triangular, semi-spherical, spherical, oblong.

4. The display as recited in claim 1, wherein said substrate and diffusing surface are sealed and a space therebetween evacuated.

5. The display as recited in claim 1, wherein said substrate reflective surface is selected from the group consisting of: aluminum, gold, tin, copper.

6. The display as recited in claim 1, wherein said transflective surface is selected from the group consisting of: SiO2, TiO2.

7. The display as recited in claim 1, wherein said transflective surface has a known reflectivity and transmission characteristic.

8. The display as recited in claim 7, wherein said reflectivity of said transflective surface is in the range of 10 to 90 percent.

9. The display as recited in claim 1, wherein said reflective surface is positioned lateral to a corresponding LED.

10. The display as recited in claim 9, wherein said reflective surface is further positioned perpendicular to said lateral reflective surface.

11. The display as recited in claim 1, wherein said transflective surface shape is selected from the group consisting of: square, rectangular, circular, triangular.

12. A method for increasing the color-mixing area of a LED display comprising the steps of:

depositing a reflective layer between at least adjacent rows or columns of LEDs positioned on a substrate

depositing a transflective surface on a diffusing surface opposite and proximate to corresponding selected ones of said LEDs, wherein said transflective surface is operable to reflect light emitted from said LEDs to said reflective surface.

13. The method as recited in claim 12, wherein said transflective surface has a known cross-sectional shape.

14. The method as recited in claim 13, wherein said cross-sectional shape is selected from the group consisting of: square, rectangular, conic, triangular, semi-spherical, spherical, oblong.

15. The method as recited in claim 12, wherein said substrate and diffusing surface are sealed and a space therebetween evacuated.

16. The method as recited in claim 12, wherein said substrate reflective surface is selected from the group consisting of: aluminum, gold, tin, copper.

17. The method as recited in claim 12, wherein said transflective surface is selected from the group consisting of: SiO2, TiO2.

18. The method as recited in claim 12, wherein said transflective surface has a known reflectivity and transmission characteristic.

19. The method as recited in claim 18, wherein said reflectivity of said transflective surface is in the range of 10 to 90 percent.

20. The method as recited in claim 12, wherein said reflective surface is deposited lateral to a corresponding LED.

21. The method as recited in claim 20, wherein said reflective surface is further deposited perpendicular to said lateral reflective surface.

22. The method as recited in claim 12, wherein said transflective surface shape is selected from the group consisting of: square, rectangular, circular, triangular.